SGS-THOMSON MICROELECTRONICS

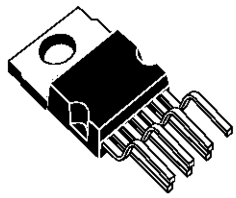
TDA8172

TV VERTICAL DEFLECTION OUTPUT CIRCUIT

- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION

DESCRIPTION

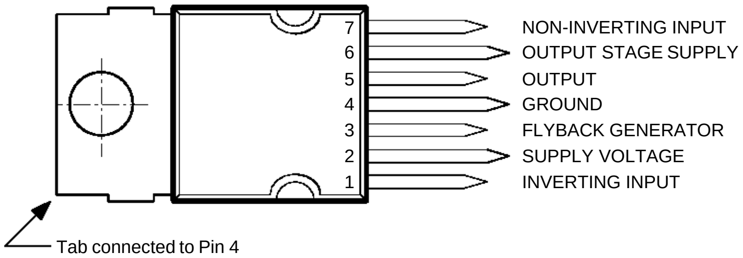
The TDA8172 is a monolithic integrated circuit in HEPTAWATT[TM] package. It is a high efficiency power booster for direct driving of vertical windings of TV yokes. It is intended for use in Color and B & W television as well as in monitors and displays.



HEPTAWATT
(Plastic Package)

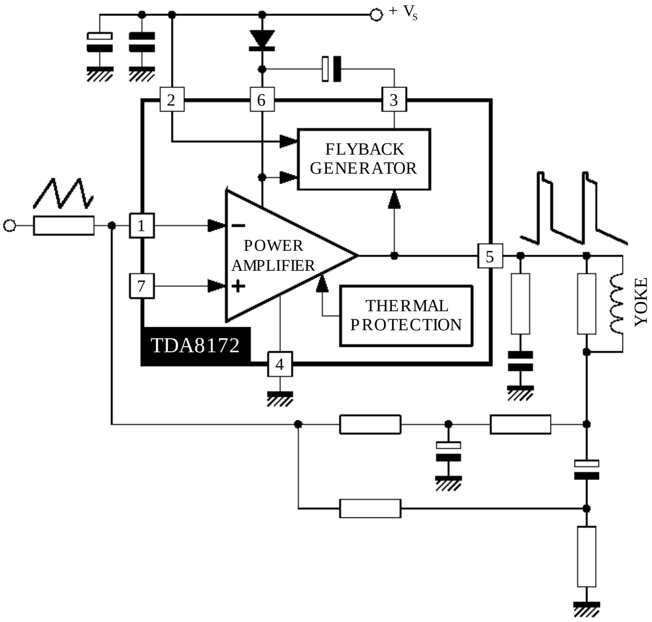
ORDER CODE : TDA8172

PIN CONNECTIONS (top view)



8172-01.EPS

BLOCK DIAGRAM



8172-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage (pin 2)	35	V
V_5, V_6	Flyback Peak Voltage	60	V
V_3	Voltage at Pin 3	+ V_s	
V_1, V_7	Amplifier Input Voltage	+ V_s – 0.5	V
I_o	Output Peak Current (non repetitive, t = 2 ms)	2.5	A
I_o	Output Peak Current at f = 50 or 60 Hz, t ≤ 10 µs	3	A
I_o	Output Peak Current at f = 50 or 60 Hz, t > 10 µs	2	A
I_3	Pin 3 DC Current at $V_5 < V_2$	100	mA
I_3	Pin 3 Peak to Peak Flyback Current at f = 50 or 60 Hz, $t_{fly} \leq 1.5$ ms	3	A
P_{tot}	Total Power Dissipation at T_{case} = 90 °C	20	W
T_{stg}, T_j	Storage and Junction Temperature	– 40, +150	°C

8172-01.TBL

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Thermal Resistance Junction-case	Max.	3	°C/W

8172-02.TBL

ELECTRICAL CHARACTERISTICS

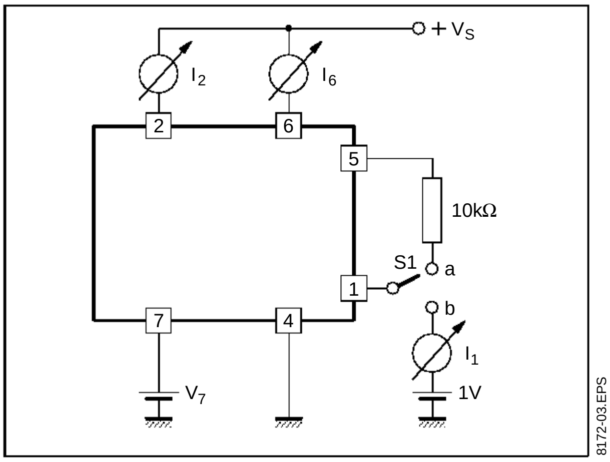
(refer to the test circuits, V_S = 35V, T_{amb} = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	Fig.
I_2	Pin 2 Quiescent Current	$I_3 = 0$, $I_5 = 0$		8	16	mA	1a
I_6	Pin 6 Quiescent Current	$I_3 = 0$, $I_5 = 0$		16	36	mA	1a
I_1	Amplifier Input Bias Current	V_1 = 1 V, V_7 = 2 V		– 0.1	– 1	µA	1a
		V_1 = 2 V, V_7 = 1 V		– 0.1	– 1	µA	1a
V_{3L}	Pin 3 Saturation Voltage to GND	I_3 = 20 mA		1	1.5	V	1c
V_5	Quiescent Output Voltage	V_s = 35V, R_a = 39 kΩ		18		V	1d
V_{5L}	Output Saturation Voltage to GND	I_5 = 1.2 A		1	1.4	V	1c
		I_5 = 0.7 A		0.7	1	V	1c
V_{5H}	Output Saturation Voltage to Supply	– I_5 = 1.2 A		1.6	2.2	V	1b
		– I_5 = 0.7 A		1.3	1.8	V	1b
T_j	Junction Temperature for Thermal Shut Down			140		°C	

8172-03.TBL

Figure 1 : DC Test Circuits.

Figure 1 a : Measurement of I_1 ; I_2 ; I_6



S_1 : (a) I_2 and I_6 ; (b) I_1

Figure 1 b : Measurement of V_{5H}

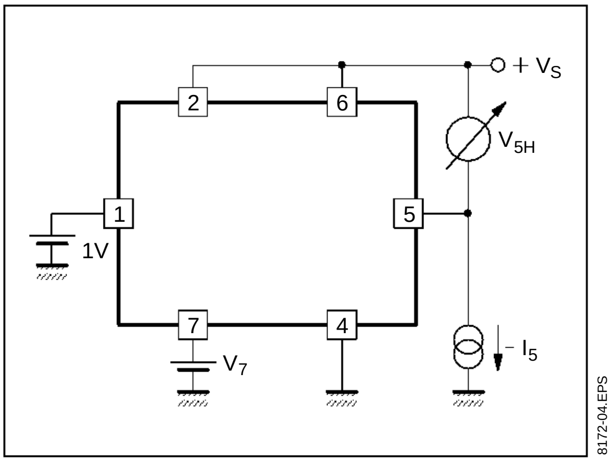
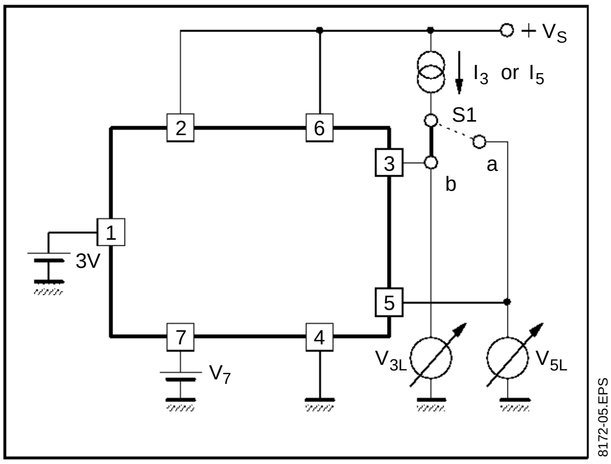


Figure 1 c : Measurement of V_{3L} ; V_{5L}



S_1 : (a) V_{3L} ; (b) V_{5L}

Figure 1 d : Measurement of V_5

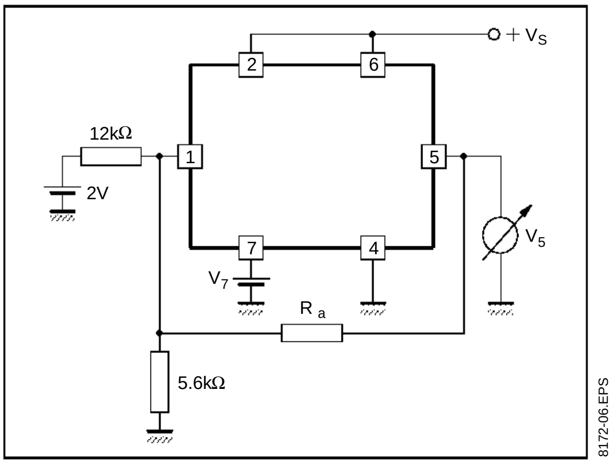
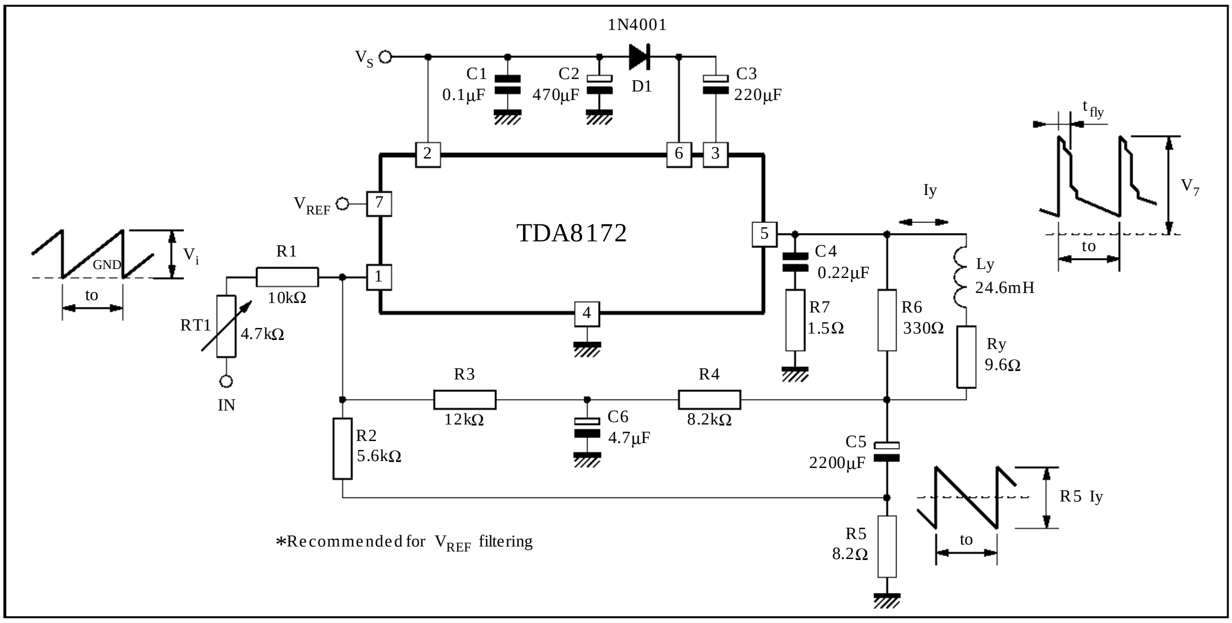


Figure 2 : AC Test Circuit



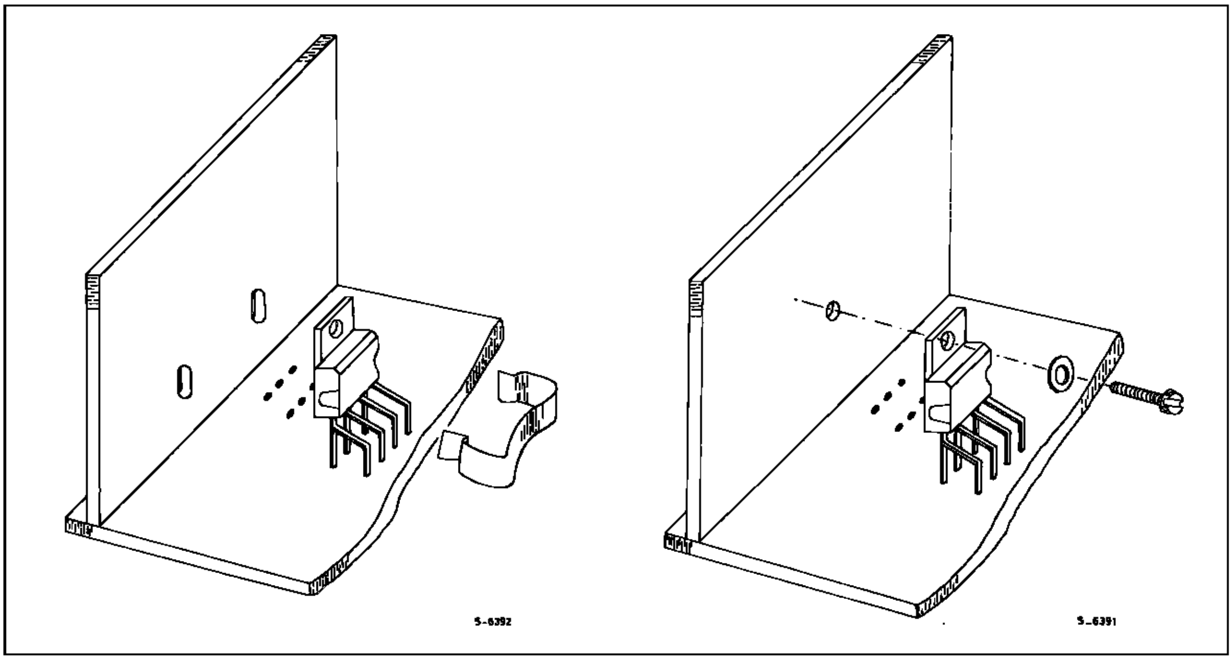
8172-07.EPS

MOUNTING INSTRUCTIONS

The power dissipated in the circuit must be removed by adding an external heatsink.
Thanks to the HEPTAWATT™ package attaching the heatsink is very simple, a screw or a compression spring (clip) being sufficient.

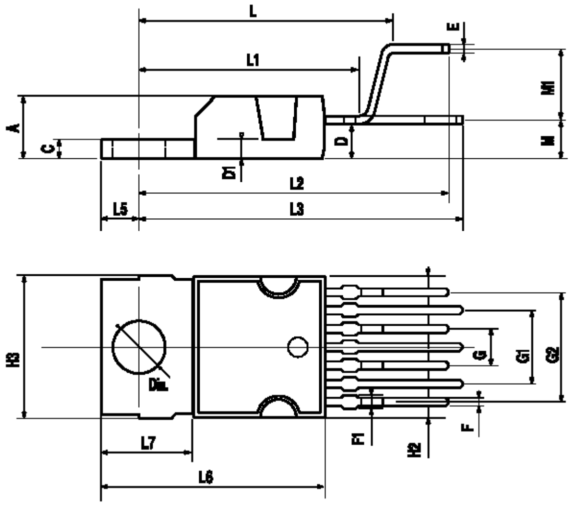
Between the heatsink and the package it is better to insert a layer of silicon grease, to optimize the thermal contact ; no electrical isolation is needed between the two surfaces, since the tab is connected to Pin 4 which is ground.

Figure 3 : Mounting Examples



8172-08.EPS - 8172-09.EPS

PACKAGE MECHANICAL DATA : 9 PINS - PLASTIC HEPTAWATT



PM-HEPTV.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			4.8			0.189
C			1.37			0.054
D	2.4		2.8	0.094		0.110
D1	1.2		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
F	0.6		08	0.024		0.031
F1			0.9			0.035
G	2.41	2.54	2.67	0.095	0.100	0.105
G1	4.91	5.08	5.21	0.193	0.200	0.205
G2	7.49	7.62	7.8	0.295	0.300	0.307
H2			10.4			0.409
H3	10.05		10.4	0.396		0.409
L		16.97			0.668	
L1		14.92			0.587	
L2		21.54			0.848	
L3		22.62			0.891	
L5	2.6		3	0.102		0.118
L6	15.1		15.8	0.594		0.622
L7	6		6.6	0.236		0.260
M		2.8			0.110	
M1		5.08			0.200	
Dia.	3.65		3.85	0.144		0.152

HEPTV.TBL